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09/941,232	08/27/2001	Hideaki Yoshida	01519/LH	5280

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EXAMINER	
KIBLER, VIRGINIA M	
ART UNIT	**PAPER NUMBER**
2623	8

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/941,232	YOSHIDA, HIDEAKI	
	Examiner	Art Unit	
	Virginia M Kibler	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-41 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-41 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 27 August 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 6,7.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitations "the image data generation step" in line 5, "the stereo data generation step" in line 8, and "the image file generation step" in line 12. There are insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 20-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Furuhata (JP 09-224264).

Regarding claim 20, Furuhata discloses a stereo imaging optical system for receiving light rays coming from an object at different positions corresponding to parallax, and guiding the received light rays toward different regions of a pickup unit; imaging means for obtaining an

object image signal on the basis of the output from the pickup unit (Drawing 1; Para. 0018-0028); image frame setting means for setting a plurality of monocular image frames corresponding to a plurality of monocular images as building components of one multocular stereo image in an imaging area of the pickup unit by executing a predetermined trimming process of the object image signal (Drawing 2; Para. 0025-0026); and stereo image generation means for generating a multocular stereo image having a predetermined data structure on the basis of a plurality of monocular images obtained in correspondence with the plurality of imaging frames (Para. 0026-0027; Drawings 1 and 2).

Regarding claim 21, Furuhata discloses the trimming process in which two images are simply divided by trimming, thereby executed by the imaging frame setting means is done at identical vertical and horizontal trimming ratios with reference to 100% trimming as a trimming state when the plurality of monocular image frames occupy a maximum region (Drawing 2).

Regarding claim 22, Furuhata discloses the stereo imaging optical system is prepared by attaching before a single-lens imaging optical system a stereo adapter as an optical system for splitting a single field of view of the imaging optical system into a plurality of fields of view having a predetermined parallax (Drawing 1).

Regarding claim 23, Furuhata discloses the stereo imaging optical system is a binocular type stereo optical system having a pair of right and left optical axes (Drawing 1).

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-5, 7-12, and 14-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Oshima et al. (6,574,423).

Regarding claim 1, Oshima et al. ("Oshima") discloses all image data including all pieces of image information of the plurality of monocular images, and stereo data as information which pertains to a construction as a stereo image except for the image information are inseparably arranged in construction units of a single file (Col. 5, lines 8-65; Figure 49).

Regarding claim 2, Oshima discloses the stereo data contains identification information indicating whether or not the image file is a stereo image file (Col. 6, lines 4-38), information used to reproduce the respective monocular images form all the pieces of image information (Col. 7, lines –13), and information associated with a layout of the monocular images (Col. 8, lines 27-44).

Regarding claim 3, Oshima discloses the stereo data is described in a header field of the image file (Figure 49).

Regarding claim 4, Oshima discloses all the image data form parallel layout type stereo image data obtained by arranging the respective pieces of information of the plurality of monocular images at different positional regions on one 2-D image (Col. 4, 62-67, Col. 5, lines 1-51).

Regarding claim 5, Oshima discloses the monocular images include two, right and left images corresponding to binocular view of right and left eyes, and the parallel layout type stereo image data is a stereo image pair in which the right and left images are arranged at right and left positions (Col. 4, lines 62-67, Col. 5, lines 1-51).

Regarding claim 7, the arguments analogous to those presented above for claim 1 are applicable to claim 7. Oshima discloses a recording medium (Abstract).

Regarding claims 8 and 14, Oshima discloses an image data generation step of generating all image data containing all pieces of image information of the plurality of monocular images (Col. 4, lines 62-67, Col. 5, lines 1-4), a stereo data generation step of generating stereo data as information which pertains to a construction of a stereo image except for the image information (Col. 6, lines 4-55), and the image file generation sep of generating a single digital image file by combining all the image data and stereo data as the digital stereo image file (Col. 5, lines 8-65; Figure 49).

Regarding claims 9-12, the arguments analogous to those presented above for claims 2-5 are applicable to claims 9-12, respectively.

Regarding claims 15-18, the arguments analogous to those presented above for claims 2-5 are applicable to claims 15-18, respectively.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 24 and 26-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al. (6,574,423) in view of Furuhata (JP 09-224264).

Regarding claim 26, 30, and 34, Oshima discloses generating a single stereo image using first and second monocular images (Col. 4, lines 62-67, Col. 5, lines 1-4), and header information which contains an item indicating the first and second monocular images are contained in the image data (Figure 49), an item indicating that the first and second monocular images belong to a single stereo image (Figure 4), and an item associated with addresses of the first and second monocular images (Figure 4), and is inseparable from the image data (Figure 49; Col. 5, lines 8-65). Oshima does not appear to recognize that the images are formed via a first and second optical axes having a span substantially corresponding to parallax. However, Furuhata discloses generating a single stereo image by first and second monocular images formed via first and second optical axes having a span substantially corresponding to parallax (Drawing 1). Oshima and Furuhata are combinable because they are from the same field of endeavor of stereoscopic images. At the time of the invention, it would have been obvious to one of ordinary skill in the art to have modified the stereo image disclosed by Oshima to specify forming via first and second optical axes having a span substantially corresponding to parallax. The motivation for doing so would have been because it is a well known standard in the art and it is routinely utilized as a method for forming a stereo image. Therefore, it would have been obvious to combine Oshima with Furuhata to obtain the invention as specified in claims 26, 30, and 34.

Regarding claim 38, the arguments analogous to those presented above for claim 26 are applicable to claim 38. Oshima does not appear to specify an optical system or a single pickup unit. However, Furuhata discloses an optical system which has right and left optical axes substantially corresponding to parallax and forms object images (Drawing 1) and a single pickup

unit for generating one image data corresponding to a single stereo image on the basis of right and left monocular images formed thereon via the optical system (Para. 0020, Drawings 1 and 2). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have modified the stereo data disclosed by Oshima to include an optical system to obtain the data. The motivation for doing so would have been because it is well known in the art and it would expand the versatility of the system to include a means for generating the stereo data. Therefore, it would have been obvious to combine Oshima with Furuhata to obtain the invention as specified in claim 38.

Regarding claims 27, 31, 35, and 39, the arguments analogous to those presented above for claims 26 and 38 are applicable to claims 27, 31, 35, and 39. Furuhata discloses the first and second monocular images are 2-D images which are arranged side by side to form a single stereo image (Drawing 2).

Regarding claims 28, 29, 32, 33, 36, 37, 40, and 41, the arguments analogous to those presented above for claim 21 are applicable to claims 28, 29, 32, 33, 36, 37, 40, and 41. It would have been obvious to one of ordinary skill in the art to have modified the first and second monocular images disclosed by Oshima to include trimming as taught by Furuhata. The motivation for doing so would have been because it divides the image into two regions corresponding to the left and right eye in order to obtain a stereo image.

Regarding claim 24, Oshima discloses a data structure of a multocular digital stereo image file which is formed by a plurality of monocular images of different viewpoints (Col. 4, lines 62-67, Col. 5, lines 1-4) and is recorded as digital data (Col. 5, lines 8-65). The arguments analogous to those presented above for claim 1 are applicable to claim 24. Oshima does not

disclose a stereo imaging optical system as specified in claim 20. However, Furuhata discloses a stereo imaging optical system for receiving light rays coming from an object at different positions corresponding to parallax, and guiding the received light rays toward different regions of a pickup unit; imaging means for obtaining an object image signal on the basis of the output from the pickup unit (Drawing 1; Para. 0018-0028); image frame setting means for setting a plurality of monocular image frames corresponding to a plurality of monocular images as building components of one multocular stereo image in an imaging area of the pickup unit by executing a predetermined trimming process of the object image signal (Drawing 2; Para. 0025-0026); and stereo image generation means for generating a multocular stereo image having a predetermined data structure on the basis of a plurality of monocular images obtained in correspondence with the plurality of imaging frames (Para. 0026-0027; Drawings 1 and 2). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have modified the stereo data disclosed by Oshima to include an optical system to obtain the data. The motivation for doing so would have been because it is well known in the art and it would expand the versatility of the system to include a means for generating the stereo data. Therefore, it would have been obvious to combine Oshima with Furuhata to obtain the invention as specified in claim 24.

9. Claims 6, 13, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al. (6,574,423) as applied to claims 4, 11, and 17 above, and further in view of Furuhata (JP 09-224264).

Regarding claims 6, 13, and 19, Oshima does not appear to recognize the parallel layout type stereo image data is obtained by forming predetermined frame line on boundary regions of

the monocular images. However, Furuhata discloses forming a predetermined frame line on boundary regions of the monocular images (Drawing 2). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have modified the parallel layout type stereo image data disclosed by Oshima to include forming a predetermined frame line on boundary regions of the monocular images. The motivation for doing so would have been because it is well known in the art and provides a division between the left and right images. Therefore, it would have been obvious to combine Oshima with Furuhata to obtain the invention as specified in claims 6, 13, and 19.

10. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al. (6,574,423) as applied to claim 14 above.

Regarding claim 25, Oshima discloses a plurality of monocular images (Col. 4, lines 62-67, Col. 5, lines 1-4), but does not appear to recognize the images are input from independent image files. However, it is well known to provide images from independent image files to form a stereo image. Therefore, it would have been obvious for one of ordinary skill in the art to have specified the images disclosed by Oshima to be input from independent image files. The motivation for doing so would have been to expand the versatility of the system to encompass obtaining the monocular images from independent image files.

Other Prior Arts Cited

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 6,621,921 to Matsugu et al. for image processing apparatus;

U.S. Pat. No. 6,222,583 to Matsumura et al. for labeling sight images;

U.S. Pat. No. 5,671,450 to Suzuki for stereo image forming adapter; and

U.S. Pat. No. 6,496,183 to Bar-Nahum for filter for transforming 3D data in a hardware accelerated rendering architecture.

Contact Information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia M Kibler whose telephone number is (703) 306-4072. The examiner can normally be reached on Mon-Thurs 8:00 - 5:30 and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Virginia Kibler
07/29/04

MEHRDAD DASTOURI
PRIMARY EXAMINER